

CLAIMS

What is claimed is:

1. A mixture of reaction products of



the mixture being substantially free from di-functional diols other than HO-R²-OH,
wherein

each R¹ is independently a C₁-C₁₀ alkyl group;
R² is a C₂-C₆ alkylene group;
each of R³, R⁴, R⁵, and R⁶ is independently a hydrogen atom or a C₁-C₄ alkyl group
except that

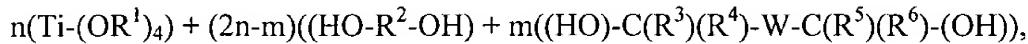
at least one of R³ and R⁴ is a C₁-C₄ alkyl group, and
at least one of R⁵ and R⁶ is a C₁-C₄ alkyl group;

W is an oxygen atom, a sulfur atom, a nitrogen-containing group, a phosphorus-
containing group, or a C₁-C₄ alkylene group;

each of x and y is greater than 0; and

y > z.

2. The mixture of claim 1 wherein y = 2x - z and each of x, y, z is a number greater than 0.
3. The mixture of claim 1 wherein z = 0 and y/x > 2.
4. The mixture of claim 1 where W is a C₁-C₄ alkylene group.
5. The mixture of claim 4 wherein R¹ is an isopropyl group; R² is a butylene group; each of R³, R⁴, and R⁵ is a methyl group; and R⁶ is a hydrogen atom.
6. The mixture of claim 1 wherein the mixture of reaction products is substantially free from all mono- and di-functional alcohols.
7. A mixture of reaction products of



the mixture being substantially free from di-functional diols, wherein

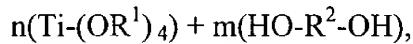
each R¹ is independently a C₁-C₁₀ alkyl group;

R^2 is a C_2 - C_6 alkylene group;
each of R^3 , R^4 , R^5 , and R^6 is independently a hydrogen atom or a C_1 - C_4 alkyl group
except that

at least one of R^3 and R^4 is a C_1 - C_4 alkyl group, and
at least one of R^5 and R^6 is a C_1 - C_4 alkyl group;

W is an oxygen atom, a sulfur atom, a nitrogen-containing group, a phosphorus-containing group, or a C_1 - C_4 alkylene group; and
each of m and n is greater than 0.

8. The mixture of claim 7 where W is a C_1 - C_4 alkylene group.
9. The mixture of claim 7 wherein R^1 is an isopropyl group.
10. The mixture of claim 7 wherein R^2 is a butylene group.
11. The mixture of claim 7 wherein R^1 is an isopropyl group; R^2 is a butylene group; each of R^3 , R^4 , and R^5 is a methyl group; R^6 is a hydrogen atom; and W is a methylene group.
12. The mixture of claim 7 wherein $m/2n$ is between about 0.1 to about 0.5.
13. The mixture of claim 12 wherein $m/2n$ is between about 0.15 to about 0.25.
14. The mixture of claim 7 further comprising an organic solvent.
15. The mixture of claim 7 wherein the mixture is obtained from a reaction conducted in an organic solvent.
16. The mixture of claim 15 wherein the organic solvent is a chlorohydrocarbon.
17. The mixture of claim 16 wherein the organic solvent is *o*-dichlorobenzene.
18. The mixture of claim 7 wherein the mixture of reaction products is substantially free from all mono- and di-functional alcohols.
19. A mixture of reaction products of



wherein

- each R^1 is independently a C_1 - C_{10} alkyl group;
 R^2 is a C_2 - C_6 alkylene group; and
each of m and n is greater than 0, and $m/n > 2$.
20. The mixture of claim 19 wherein R^1 is an isopropyl group.

21. The mixture of claim 19 wherein R² is a butylene group.
22. The mixture of claim 19 wherein R¹ is an isopropyl group and R² is a butylene group.
23. The mixture of claim 19 wherein 5 > m/n > 3.
24. The mixture of claim 19 wherein the mixture is obtained from a reaction conducted without a solvent.
25. The mixture of claim 19 substantially free of all mono- and di-functional alcohols.
26. A method for depolymerizing a polyester comprising the step of contacting, in the presence of heat, a mixture comprising: a polyester, an organic solvent which is substantially free of oxygen and water, and the mixture of claim 1, to produce macrocyclic oligoesters substantially free from macrocyclic co-oligoesters.
27. The method of claim 26 wherein the polyester comprise poly(1,4-butylene terephthalate).
28. A method for depolymerizing a polyester comprising the step of contacting, in the presence of heat, a mixture comprising: a polyester, an organic solvent which is substantially free of oxygen and water, and the mixture of claim 7, to produce macrocyclic oligoesters substantially free from macrocyclic co-oligoesters.
29. A method for depolymerizing a polyester comprising the step of contacting, in the presence of heat, a mixture comprising: a polyester, an organic solvent which is substantially free of oxygen and water, and the mixture of claim 19, to produce macrocyclic oligoesters substantially free from macrocyclic co-oligoesters.